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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,036	01/19/2005	Kenji Maruyama	SHIGA7.004APC	1510
20995	7590	03/30/2006	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			LEE, SIN J	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/522,036

Applicant(s)

MARUYAMA ET AL.

Examiner

Sin J. Lee

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 10 is/are allowed.
- 6) ☒ Claim(s) 2-9, 11-19, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

1. In view of applicants' argument, previous 102(e) rejection on claims 2, 4-6, 8, 9 and 11 over Hatakeyama '744 and previous 103(a) rejection on claim 7 over Hatakeyama '744 in view of Takeda'394 are hereby withdrawn.
2. Due to new grounds of rejections, the following rejections are made non-final.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 4-9/2, 11, 13/2 and 14/2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, applicants recited that "the content of an acid component is 10 ppm or less". Are applicants saying that the compound generating an acid is present in the amount of 10 ppm or less, or are they saying that the acid generated by the compound should be 10 ppm or less? For the purpose of examining the claims on the merit, the Examiner assumed that applicants meant to say that the content of the compound generating an acid is 10 ppm or less.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 3, 4-6/3, 8/3, 9/3, 12, 15-19, 21 and 22 are rejected under 35

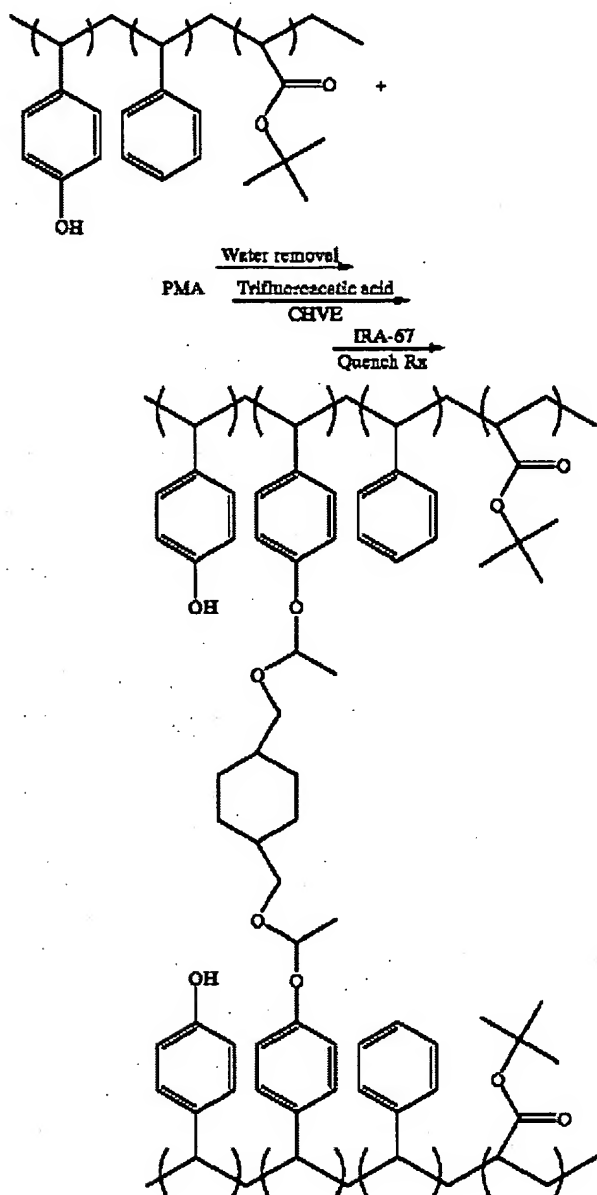
U.S.C. 102(b) as being anticipated by Adams et al (US 2002/0012869 A1).

In Example 1, Adams teaches the synthesis of the following polymer:

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Synthesis of 1,4-cyclohexanedimethanol divinyl  
ether (CHVE) Crosslinked Hydroxystyrene  
(HS)/Styrene/*t*-butylacrylate terpolymer

[0048]



The mole % for the styrene unit in the starting polymer (i.e., uncrosslinked polymer) is 20 mol %. Adams combines his polymer with a photoacid generator and ethyl lactate

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solvent, and the formulated photoresist is spin coated onto a silicon wafer; solvent removed by soft bake; the resist layer is exposed to 248 nm radiation; the exposed resist layer is subjected to post-exposure thermal treatment; and then the resist layer is developed to obtain a resist pattern (see [0053]). Adams also teaches ([0036]) the use of a base such as tetrabutylammonium hydroxide (TBAH) or a lactate salt of TBAH in the amount of 1-20% by weight relative to the photoacid generator. Adams states that his resist composition can be photoactivated by an exposure wavelength in the deep UV range, typically about 150 to 300 or 450 nm. Therefore, Adams teaches present inventions of claims 3-6, 8, 9, 12, 15-17, 19, 21 and 22 (it is the Examiner's position that Adams's photoresist composition would inherently be capable of being used for a thick-film photolithography process used for forming a resist film having a thickness of 2-7 um and for forming a resist pattern for implantation as recited in claims 8 and 9).

With respect to present claim 18, in [0026], Adams teaches that his polymer has a Mw of 2,000 to 30,000 preferably. Since the data point of 30,000 is clearly disclosed as the higher end of the taught range, one skilled in the art would immediately envisage Adams's polymer to have the Mw of 30,000. Therefore, Adams teaches present invention of claim 18.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3/7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US 2002/0012869 A1) in view of Takeda et al (US 6,593,056 B2).

As discussed above, Adams uses ethyl lactate solvent for his positive chemically-amplified photoresist composition. As evidenced by Takeda, col.42, lines 35-37, lines 50-53,  $\gamma$ -butyrolactone and ethyl lactate are art-known equivalent solvents for chemically amplified positive resist composition. Therefore, because those two solvents were art-recognized equivalents at the time the invention was made, it would have been obvious to one skilled in the art to use  $\gamma$ -butyrolactone as Adams's solvent. Therefore, Adams in view of Takeda would render obvious present invention of claim 7.

***Allowable Subject Matter***

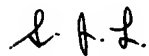
9. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Adams does not teach or suggest present photoacid generator of claim 20.

10. Claims 1 and 10 are allowed. Adams et al does not teach or suggest present resin (A) of claim 1.

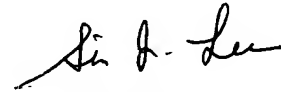
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee  
March 16, 2006



**SIN LEE**  
**PRIMARY EXAMINER**